

CLAIMS

What is claimed is:

1. A method, comprising:
exciting an undesirable bond in an atomic layer deposition (ALD) formed film to an energy level greater than a ground state of the undesirable bond.
2. The method of claim 1, further comprising:
after exciting the undesirable bond, exposing the film to a reactant.
3. The method of claim 2, wherein the reactant is an oxygen source.
4. The method of claim 3, wherein the oxygen source is water.
5. The method of claim 2, wherein the reactant comprises a metal precursor.
6. The method of claim 5, wherein the metal is one of zirconium, titanium, aluminum, gallium, cesium, indium, hafnium, tantalum, praseodymium, niobium, scandium, lutetium, cerium and lanthanum.
7. The method of claim 1, wherein the undesirable bonds are metal-metal bonds.
8. The method of claim 7, wherein the metal is selected from a group consisting of zirconium, titanium, aluminum, gallium, cesium, indium, hafnium, tantalum, praseodymium, niobium, scandium, lutetium, cerium and lanthanum.
9. The method of claim 1, wherein the film is a metal oxide film.
10. The method of claim 1, wherein exciting the undesirable bonds comprises exposing the undesirable bonds to electromagnetic radiation.

11. A method, comprising:
 - forming a film on a substrate, wherein forming the film comprises:
 - exposing the substrate to a reactant to form hydroxyl bonds on a surface of the substrate;
 - exposing the hydroxyl bonds to a reactant; and
 - applying an electromagnetic radiation to the hydroxyl bonds while the hydroxyl bonds are exposed to the metal-containing reactant, the radiation of a sufficient magnitude to excite undesirable bonds formed during the exposure of the hydroxyl bonds to the reactant.
12. The method of claim 11, wherein the reactant is an oxygen source
13. The method of claim 12, wherein the oxygen source is water.
14. The method of claim 11, wherein the reactant includes a metal selected from a group consisting of zirconium, titanium, aluminum, gallium, cesium, indium, hafnium, tantalum, praseodymium, niobium, scandium, lutetium, cerium and lanthanum.
15. The method of claim 11, wherein the electromagnetic radiation is applied by a tunable laser.
16. The method of claim 11, wherein the undesirable bonds are metal to metal bonds.
17. The method of claim 16, wherein the metal is selected from a group consisting of zirconium, titanium, aluminum, gallium, cesium, indium, hafnium, tantalum, praseodymium, niobium, scandium, lutetium, cerium and lanthanum.
18. The method of claim 11, wherein the undesirable bonds are metal to halide bonds.

19. The method of claim 11, wherein the film formed on the substrate is a metal oxide.
20. The method of claim 11, wherein the film formed on the substrate is a metal nitride.
21. A method, comprising:
 - modifying undesirable bonds in an atomic layer deposition (ALD) formed film to an energy level greater than a ground state of the undesirable bonds; and
 - exposing the film to a reactant.
22. The method of claim 21, wherein modifying the undesirable bonds comprises reducing the number of undesirable bonds on the film.
23. The method of claim 21, wherein modifying the undesirable bonds comprises minimizing the number of undesirable bonds on the film.